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EFFECT OF DIGITAL BANKING ON FINANCIAL INTERMEDIATION AMONG COMMERCIAL BANKS IN KENYA

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ABSTRACT

This study sought to assess the effect of digital banking on the financial intermediation in licensed commercial banks in Kenya. Specifically, the study sought to determine the effect of mobile banking, agency banking and internet banking on financial intermediation in licensed Kenyan commercial banks. The study employed correlational descriptive research design. Secondary sources of data were employed. Correlation analysis and multiple linear regression analysis were used so as to establish the effect of digital banking on financial intermediation. The study findings revealed that agency banking had increased tremendously over the eight years of study. However, this had a negative and insignificant effect on growth of financial intermediation as measured through loans-to-deposits ratio. The value of transaction through mobile and internet banking increased significantly from year 2012 to 2019 as more banks implemented digital banking. However, both mobile banking and internet banking was not significant in enhancing financial intermediation and the study found a negative correlation. Thus, the study concluded that digital banking through agency, mobile and internet banking cannot be utilized to significantly predict financial intermediation. Policy recommendations are made to the National Treasury and Central Bank of Kenya, and to the commercial bank practitioners, and by extension, other financial institutions practitioners, and consultants not to focus entirely on digital banking in order to enhance financial deepening but should focus on other factors instead.

Key words: Digital banking; Financial Intermediation; Mobile banking; Agency banking.

1.0 INTRODUCTION

According to Gomber et al (2017), digital banking refers to provision of financial products with the help of finance-related software and customer interaction systems by banks and digital banking companies. This encompasses use of mobile phones, computers, internet or programmed cards to access financial services. A common consensus about digital banking is that it enables customers to make payments, savings, and access credit facilities digitally without having to queue in banking halls or deal directly with financial service providers.

According to Mateka, Gogo and Omwagwa (2016), revolution in banking industry as a result of Information technology has transformed the once quiescent enterprise to a vibrant financial establishment. Adoption of digital banking by commercial banks has been supported by the notion that financial innovations facilitate savings on time and cost of offering banking services which leads to high customer acquisition, satisfaction and retention (Ongori & Migiro, Digitization helps banks save on operating expenses by reducing customer queues in banking halls, reducing paperwork and need for physical branches (Manyika et al, 2016). The emergence of electronic banking in Pakistan has enabled retail banks to penetrate new markets and substantially improve on their profitability (Sumra, Manzoor, Sumra, & Abbas, 2011). In Kenya, Commercial Banks have employed new innovative mechanisms of delivering products and services in order to gain competitive advantage and facilitate growth in terms of customer numbers, deposits and loan book (Kenya & Momanyi, 2015). Among digital banking strategies that have largely been adopted by Kenyan banks include agency banking, mobile banking and internet banking (Korir, 2014)

According to Victor (2015) digital banking can be measured as the output of innovations such as agency banking, internet banking, automated teller machines and phone banking. Loof (2000) considered the value of transactions completed using mobile and internet banking to assess digital banking. Agency banking plays a critical role of bringing closer to customers essential banking services such as cash deposits, withdrawals, and loan applications (Purcell et al, 2003). The most attractive feature of agency banking to customers is the flexibility of accessing banking services at extended times outside the normal banking hours (Ivatury & Lyman, 2006). This study examined how the use of internet banking, mobile banking and agency banking among commercial banks in Kenya affected the level of financial intermediation.

There are several measures of financial intermediation that have been put forward by various researchers. King and Levile (1992) uses the ratio of deposits to GDP or loans to GDP. According to this, banks are able to collect cash and create deposits which is then used to finance private sector development thus facilitating economic growth. Thiel (2001) posits that financial intermediation should be assessed by comparing how surplus funds i.e savings are matched to deficit funds i.e investment. The key indicator of the degree of financial intermediation is the

ratio of loans to deposits (Martin & Emilia, 2018). This implies that the most likely allocation of collected funds by banks is granting loans. This study measured financial intermediation using loans-to-deposits ratio.

Proponents of digital transformations in the banking industry point out that its not technology itself that is going to be the disruptor but how banks employ technology that will cause disruption in the industry. The traditional innovation-growth model reveals that financial innovations lead to reduced agency costs, complete the market, facilitate risk sharing, enhance economic growth and improve allocative efficiency (Allen & Gale, 1994). Innovations in banking industry are expected to improve financial performance and consequently grow the economy. This is based on the notion that digitization of banking services completes the market by allocating capital to most productive sectors (Bernanke, 2007).

In Kenya, the emergence of mobile phone as a full-fledged banking tool has become a real game changer in the financial sector as it poses a great threat to traditional banking arrangements (Weil, Mbiti & Mweya, 2012). Specifically, easy-to-use digital banking platforms have led to more efficient banking systems and offered customers simple, efficient and cost-effective means of transferring money and making payments. Another research by Rutherford (2010) reveal that the convenience and low cost that comes with MPESA services in Kenya compared to traditional banks has facilitated growth of financial services and boosted informal borrowing. Tufano (2002) observes that financial innovations mitigate free immobility of funds across time and space among incomplete markets and enables individuals to share transacting risk. Secondly, the problem of information asymmetry and agency concerns is addressed with invention of new contracts such as common stocks which obligates firms to avail information to the public.

1.1 RESEARCH PROBLEM

Empirical review of global studies on digital banking and financial intermediation reveal mixed outcomes. Omarini (2017) while examining the digital transformation in the banking industry pointed out that what will cause disruption in banking industry is not technology itself, but rather how banks will adopt technology. In order to increase the capacity and reliability of banking channels, banks implement innovative technologies such as mobile banking (Wonglimpiyarat, 2014). Franscesa and Claeys (2010) observed that digital banking did not have a major contribution on bank performance.

Kinyanjui (2013) studied the significance of agency banking in Kenya and concluded that the cost of service and security concerns were critical in improving bank performance. Ondeyo (2018) found out that banks that invest in technological innovations have more satisfied customers and thus high volumes of transactions. Wansem (2015) discovered that intermediation was profound in most parts of Rwanda where mobile cash was prevalent and that M-banking services had contributed fundamentally in expanding financial markets. Other researchers such

as Michelle (2016), Muiruri and Ngari (2014) and Kenyoru (2013) concluded that digital banking had insignificant effect on access to financial services in Kenya.

From the highlighted studies, emphasis has been put on financial performance of commercial banks and not on their intermediation role. Furthermore, most studies have considered financial innovation in general thus giving a limited view of the specific indicators of digitization. It is at the centre of such research gaps that necessitated a study of the related topic in Kenya where there is relentless effort by Commercial banks to adopt digital banking. The study sought to establish whether the huge investments in technological innovations by Kenyan banks had any bearing to enhancing financial intermediation. Hence this study sought to address the question: What is the effect of digital banking on financial intermediation among Commercial Banks in Kenya?

1.2 Research Objective

The major objective of the study was to examine the effect of digital banking on financial intermediation among Commercial Banks in Kenya.

2.0 METHODS

A correlational descriptive research design was adopted to establish the linkage between digital banking and financial intermediation because it highlights the behavioural characteristics on one variable caused by other variables (Kothari, 2005). Population included all the 42 licenced commercial banks in Kenya as at 31st December 2018. Secondary data was used for the study. Correlation and regression analysis were used to analyse the data. The study used the following multiple regression model to examine whether there exists any correlation between digital banking and financial intermediation among Kenyan business banks:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where:

Y : Financial Intermediation measured by ratio of total loans to deposits held

β_0 : Constant, implying level of financial intermediation in traditional banking

X_1 : Agency Banking as measured by the natural log of total agency banking agents

X_2 : Mobile Banking determined by the natural log of total mobile banking

transactions

X_3 : Internet Banking measured using natural log of total internet banking

transactions

$\beta_1, \beta_2, \beta_3$: Regression coefficients

e : Error term

3.0 RESULTS

Correlation analysis was conducted to examine whether the variables were related or not, and the strength of that association.

Table 1: Correlation Analysis

| | | Loans to Deposit Ratio | Ln Agency Banking | Ln Mobile Banking | Ln Internet Banking |
|------------------------|---------------------|------------------------|-------------------|-------------------|---------------------|
| Loans to Deposit Ratio | Pearson Correlation | 1 | | | |
| | Sig. (2-tailed) | | | | |
| | N | 30 | | | |
| Agency Banking | Pearson Correlation | .141 | 1 | | |
| | Sig. (2-tailed) | .456 | | | |
| | N | 30 | 30 | | |
| Mobile Banking | Pearson Correlation | -.048 | .741** | 1 | |
| | Sig. (2-tailed) | .800 | .000 | | |
| | N | 30 | 30 | 30 | |
| Internet Banking | Pearson Correlation | -.109 | .749** | .985** | 1 |
| | Sig. (2-tailed) | .567 | .000 | .000 | |
| | N | 30 | 30 | 30 | 30 |

** . Correlation is significant at the 0.01 level (2-tailed).

From table 1 it was established that no digital banking component is significantly correlated at the 5% significance level to financial intermediation.

Table 2: Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---|----------|-------------------|----------------------------|
|-------|---|----------|-------------------|----------------------------|

1 .346^a .120 .014 .037844808545620

a. Predictors: (Constant), LAGS(ZLnInternetBanking,1), LAGS(ZLnAgencyBanking,1), LAGS(ZLnMobileBanking,1)

b. Dependent Variable: Loans to Deposit Ratio

From Table 2, the R² value was found to be 0.120, indicating that digital banking accounted for 12% of the deviations in financial intermediation while 88% of adjustment in financial intermediation was caused by other factors not related to digital banking. These results implied that there was a very low correlation between digital banking and financial intermediation (R=0.346).

Table 3: Model Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | |
|-------------------|-----------------------------|------------|---------------------------|---------|------|---------------------------------|-------------|
| | B | Std. Error | Beta | | | Lower Bound | Upper Bound |
| Constant | .815 | .007 | | 116.429 | .000 | .800 | .829 |
| Agency Banking | .013 | .011 | .353 | 1.182 | .228 | -.009 | .036 |
| Mobile Banking | .043 | .042 | 1.116 | 1.024 | .306 | -.042 | .129 |
| Internet Banking, | -.061 | .043 | -1.538 | -1.419 | .172 | -.150 | .028 |

a. Dependent Variable: Loans to Deposit Ratio

Table 3 shows the results of the effects of each digital banking variable on financial intermediation in Kenya. The study findings exhibited that internet banking had a negative and insignificant effect on financial intermediation (t = -1.419). Agency banking on the other hand had a positive but insignificant effect on financial intermediation (t = 1.182). Similarly, mobile banking was positively but not significantly related to financial intermediation (t = 1.024).

4.0 CONCLUSION AND RECOMMENDATION

The study concluded that digital banking has no significant effect on financial intermediation, and therefore, it cannot be utilized to significantly predict financial intermediation. This means that continued investment in digital banking by Kenyan Banks does not significantly influence financial intermediation. The study further concluded that the joint effect of digital banking

components on financial intermediation was insignificant. Additionally, results of the individual digital banking components showed that agency and mobile banking had a positive but insignificant influence on financial intermediation while internet banking had a negative and no significant effect on financial intermediation.

4.1 Recommendations

The study recommends further research to be conducted on the field of the relations between digital banking and financial intermediation. The study also recommends that in order to enhance financial intermediation in Kenya, policy makers and Central Bank of Kenya should promote uptake of mobile banking services as this is seen to have positive relationship with financial intermediation in order to increase its significance. Commercial banks should also increase penetration of mobile banking services as it enables access to financial services to a wider population.

There is need for banks to roll out more agents especially in unbanked population in order to make their banking services available in many parts of the country which may enhance utilization of the same. From research findings, agency banking has been observed to be positively correlated to financial intermediation and thus there is high likelihood that it may have a huge effect on financial intermediation if widely available.

Policy makers should invest in providing affordable internet solutions so as to lower the cost of accessing internet services. Commercial banks should ensure safety and security of information being conveyed through internet banking in order to increase users' confidence. Bank managers should also enhance customer training on the use and benefits of internet banking in as compared to traditional banking channels. This will increase the importance and influence of internet banking on intermediation role of banks.

REFERENCES

- Aduda, J., Kiragu, D., and Ndwiga, J.M. (2013). The Relationship between Agency Banking and Financial Performance of Commercial Banks in Kenya.
- Allen, F., Demirgüç, A., Klapper, L. and Peria, M.S.M. (2016). The Foundations of Financial Inclusion: Understanding ownership and use of formal accounts. *Journal of Financial Intermediation*, 27, 1-30
- Al-Smadi, M. and Al-Wabel, S. (2014) Impact of Electronic Banking on the Performance of Jordanian Banks. *Journal of Internet Banking and Commerce*, 16(1), 34-45.
- Berger, A.N. and Deyoung, R. (2013). Technological progress and the geographic expansion

- of the Banking Industry. *Journal of Money, Credit & Banking*, 38(6), 1483
- Błach, J. (2011). Financial Innovations and their Role in the Modern Financial System – Identification and Systematization of the Problem. *Financial Internet Quarterly e-Finance*, 7(3), 13-26
- Demirgüç-Kunt, A. and Klapper, L. (2013). Measuring Financial Inclusion: Explaining Variation in use of financial services across and within countries. *Brookings Papers on Economic Activity*, 2013(1), 279-340.
- Diamond, D.W. (1984). Financial Intermediation and Delegated Monitoring. *The Review of Economic studies*, 51(3), 393-414
- Gomber, P., Koch, J. A. and Siering, M. (2017). Digital finance and Digital Banking: Current research and future research directions. *Journal of Business Economics*, 67(5), 40-44.
- Kothari, C. R. (2004). Research Methodology: Methods & Techniques. 2nd Edition, *New Age International Publishers*, New Delhi.
- Leland, H.E. and Pyle, D.H. (1977). Informational asymmetries, financial structure, and financial intermediation. *Journal of Finance*, 32(2), 371-387
- Monyoncho, L.N. (2015). Relationship between Banking Technologies and Financial Performance of Commercial Banks in Kenya. *International Journal of Economics, Commerce and Management*, 3(11), 784 -815
- Mugenda, M. O. & Mugenda, G. A. (2003). *Research Methods: A Quantitative and Qualitative Approach*. Nairobi: ACTS Press.
- Nwite, S.C. (2014). Determinants of Financial Intermediation And its Implications on Economic Growth in Nigeria. *British Journal of Marketing Studies*, 3(9), 49-56
- Omarini, A. (2017). The Digital Transformation in Banking and the Role of Digital bankings in the New Financial Intermediation Scenario. *International Journal of Finance, Economics and Trade*, 1(1), 1-6.
- Shen, Y. & Huang, Y. (2016). Introduction to the Special issue: Internet finance in China. *China Economic Journal*, 9(3), 221-224.